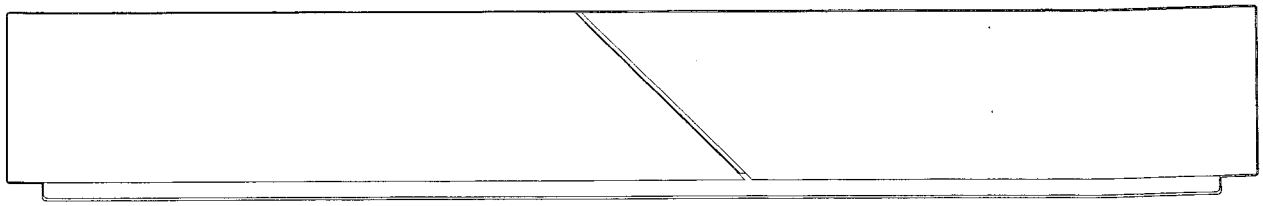
MSP 995

MULTI SATELLITE POSITIONER



User Manual

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MULTI-SATELLITE SYSTEMS

Conventional fixed-dish satellite TV systems consist of a satellite dish antenna pointing permanently at a fixed point in the sky. They can only receive transmissions which come from satellites at that particular position.

A motorised satellite dish, controlled by a dish positioner unit such as the MSP995, gives you the option of receiving programmes transmitted from other satellites.

MSP995 MULTI-SATELLITE DISH POSITIONER

Your Pace MSP995 Dish Positioner, when used in conjunction with a motorised dish and a Pace Satellite TV Receiver, allows you to receive programmes from more than one satellite.

The operation of the MSP995 is straightforward. You simply line up your dish and assign a position number to the satellite you are interested in (Astra, Eutelsat, etc.). When used in tandem with a Pace Satellite TV Receiver, you can set up your system so that the dish moves automatically when you tune into your favourite satellite TV programmes. (See the section Using Other Models for operational variations when using previous generations of Pace receivers.)

Connections

A moveable dish, which can track across a large portion of the Southern sky, is a prerequisite for a multi-satellite receiver system such as this.

A cable connects between the Dish Positioner indoors and the actuator arm of your dish assembly outside. There are two common types of actuator: the **reed** type and the **optical** (photo-interrupter) type. This Positioner functions with both types.

It is recommended that you connect your Pace satellite receiver directly to your Dish Positioner using a SCART lead. You can then set up your system so that your Positioner automatically moves the dish to the correct position when you select a programme at your satellite receiver.

The MSP995 has a rear panel polariser connector. If the LNB on your dish antenna has an electromagnetic or mechanical polariser you can attach it to your receiver (if your receiver has a suitable connector). If not, you can connect it to this polariser connector on your Positioner. Polarisation information can then be preset for satellite programmes via the Positioner. See the Installation section for more information.

Capabilities

You can use your Pace MSP995 Dish Positioner to:

- set up the panning range through which the dish moves;
- program in position numbers for the satellites you are interested in and quickly call up these positions (up to 128 positions can be preset);
- move the dish automatically to the correct position when you select a programme at your satellite receiver;
- assign polarisation information to each of the position numbers you set up.

USING THIS MANUAL

Please read the Safety instructions at the beginning of this manual prior to plugging in and switching on your Dish Positioner unit.

We recommend that your MSP995 Dish Positioner be installed by a qualified satellite TV installation engineer. The Installation procedures and Outline Specification are described towards the end of this manual. You should not need to refer to this section unless you install the Positioner yourself or modify it.

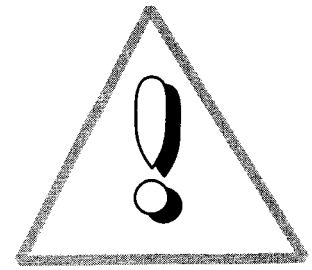
Included is an Overview of the Handset, which serves as a useful summary if you are already an experienced Positioner user or as a quick reference when you have become familiar with your Positioner.

Although it is easier to operate your Dish Positioner with the handset, you can perform some of the functions using the buttons on the front panel. The Operation section in this manual assumes you are using the handset. An overview of front panel operation is given, however.

NOTE: This manual is written from the assumption that you are operating your MSP995 in tandem with a Pace 800/900 or MSS1000 series Satellite Receiver or similar model and that you are controlling the set-up via your satellite receiver handset. A separate section, with reference to using different models of Pace receivers, is included.

REMEMBER - SAFETY FIRST

This Positioner has been designed and built in the UK to provide years of trouble-free service. It has been manufactured to meet international safety standards but, as with any electrical equipment, you must take care if you want to obtain the best results and operate your Positioner safely.



- Ensure that all electrical connections are properly made in accordance with the manufacturer's instructions (see below - Connection to the Mains Supply).

►TO AVOID THE RISK OF A FATAL ELECTRIC SHOCK:

- **DO NOT REMOVE THE COVER OF THE UNIT WITHOUT FIRST DISCONNECTING THE POSITIONER FROM THE MAINS SUPPLY.**
- **NEVER ALLOW ANYONE, ESPECIALLY CHILDREN, TO PUSH ANYTHING INTO HOLES, SLOTS OR ANY OTHER OPENING IN THE CASE.**
- Do not obstruct the Positioner's ventilation slots; never stand the Positioner on soft furnishings or carpets.
- Do not use or store the Positioner in excessively hot, cold, damp or dusty conditions.

CONNECTION TO THE MAINS SUPPLY

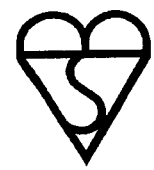
This apparatus operates within the range of 220-240 V AC, 50 Hz mains supplies. DO NOT CONNECT IT TO DC MAINS. The lead is supplied terminated at one end with a connector to be inserted into the mains input socket on the rear panel of the apparatus. DO NOT POWER UP THE UNIT UNTIL ALL THE CABLES HAVE BEEN CONNECTED.

Mains Lead Plug Connections (UK and Eire)

The mains lead supplied may or may not have a non-rewireable (moulded) plug. Please see the section marked with an asterisk (*) if the supplied mains lead does not have a non-rewireable plug fitted.

Non-Rewireable Plugs

Mains leads fitted with a non-rewireable (moulded) plug incorporate a fuse, the value of which is indicated on the pin face of the plug. Should the fuse need to be replaced, an ASTA or BSI approved BS 1362 fuse must be used of the same rating, marked as shown right.



If the fuse cover is detachable always refit the cover after replacing the fuse. NEVER use the plug with the fuse cover omitted.

If the fitted plug is not suitable for your socket outlets it should be cut off, after having first removed the fuse, and an appropriate plug fitted in its place. If this new plug contains a fuse, its value should be the same as that removed from the non-rewireable plug.

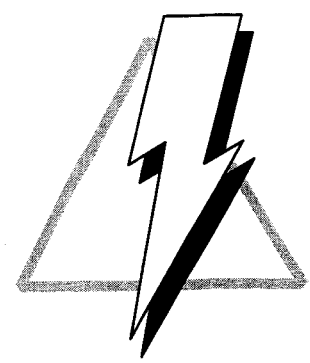
The severed plug must be destroyed immediately to avoid the possible shock hazard should it be inserted into a 13 A socket elsewhere.

***IF YOU NEED TO FIT A MAINS PLUG THEN FOLLOW THESE INSTRUCTIONS:**

Rewireable Plugs

Important: The wires in the mains lead are coloured in accordance with the following code:

BLUE - Neutral (N) **BROWN** - Live (L)



As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLUE or BLACK.

The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED.

On no account connect either of these wires to the terminal marked E or coloured GREEN or GREEN and YELLOW.

Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead, not simply over the two wires.

A fused plug must be fitted with a 3 A fuse complying with BS 1362. If you are using a non-fused plug, an external fuse must not exceed 5 A.

Mains Lead Plug Connections (Continental Europe)

The mains lead is supplied already fitted with a 2-pin moulded plug. This mains lead must not be used in the UK.

►IF IN DOUBT, CONSULT A COMPETENT ELECTRICIAN

▶ OPERATIONAL MODES

The MSP995 Dish Positioner has three main operational modes: **normal**, **program** and **set limits**. There is a front panel LED for each mode which illuminates when the Positioner is in the corresponding mode.

The Positioner goes into **normal mode** when it comes out of standby. In **normal mode** you move the dish by keying in a position number which is then displayed on the front panel. The position number will be one that you have previously programmed into the Positioner.

While you are in **normal mode**, if you press the EAST or WEST key on the handset momentarily, the Positioner will go into **program mode** but the dish will not move.

If you **hold down** the EAST or WEST key whilst in **normal mode** the MSP995 will enter **program mode** and the dish will move in the selected direction. The position is indicated by a 3-digit setting. The three digits indicate the distance moved from the Eastern-most limit of the dish's panning range. In **program mode** you can program this actual position of the dish against a position number of your choice. You can also set up and store polarisation information for that position whilst in **program mode**.

In practice you may need to limit the panning movement of the dish by setting East and West limits. This will, for example, prevent the dish moving into fixed objects or areas where its reception is affected in some way. You set these limits in the **set limits mode**.

▶ HANDSET OVERVIEW

⏻ key	brings the Positioner out of **standby mode** into **normal mode** (and vice versa)

Normal Mode

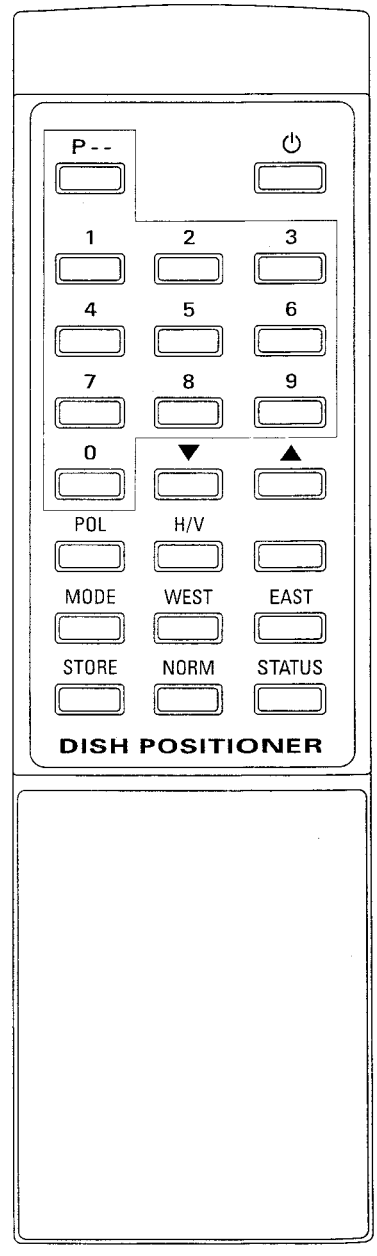
P-- key and/or 0-9 keys	used to select the **satellite position number**
▲ and ▼ keys	used to **step through the position numbers** one at a time; ▲ increments the number and ▼ decrements it
EAST or WEST key	puts the Positioner into **program mode**; also used to stop the dish when it is moving between positions
H/V key	flips the **polarity type** (Horizontal or Vertical)
MODE key then 1 key	puts the Positioner into **program mode**
MODE key then 2 key	puts the Positioner into **set limits mode**
MODE key then 9 key	used to put the Positioner into a mode where **programme number** rather than position number is displayed — press again to **cancel** this "programme number display" mode
NORM key	restores **polarity type** and **polarity value (skew)** settings
STATUS key	whilst held down, shows current **3-digit position**

Program Mode

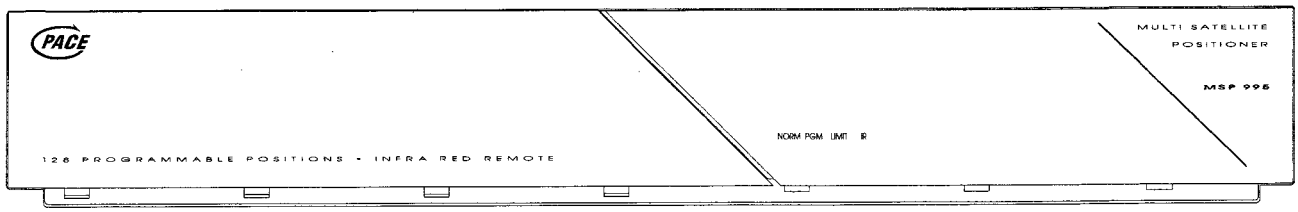
P-- key and/or 0-9 keys	used to alter the **satellite position number**
▲ and ▼ keys	used to **change the position number**; also used to alter **polarity value (skew)**
POL key	allows the **polarity value** to be set for a position
H/V key	flips **polarity type** between Horizontal and Vertical
MODE key then 3 key	used to **delete** satellite positions
EAST or WEST key	**moves the dish** Eastwards or Westwards within the preset stop limits
STORE key	used to **store** position and polarisation information
NORM key	returns you to **normal mode** without storing changes

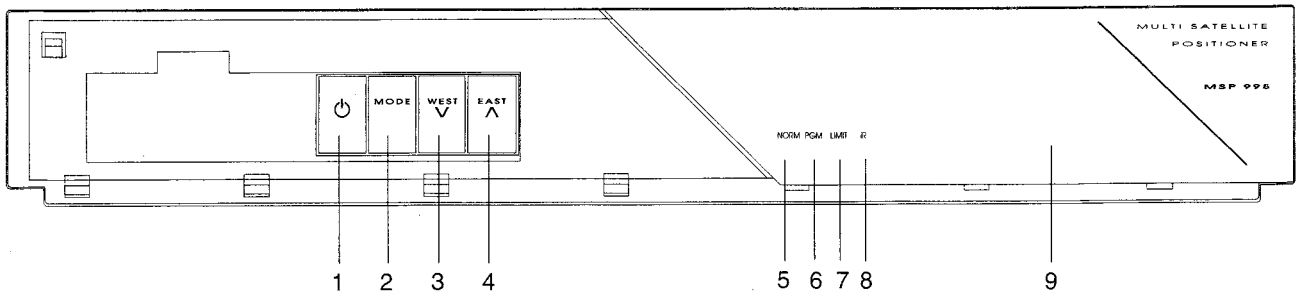
Set Limits Mode

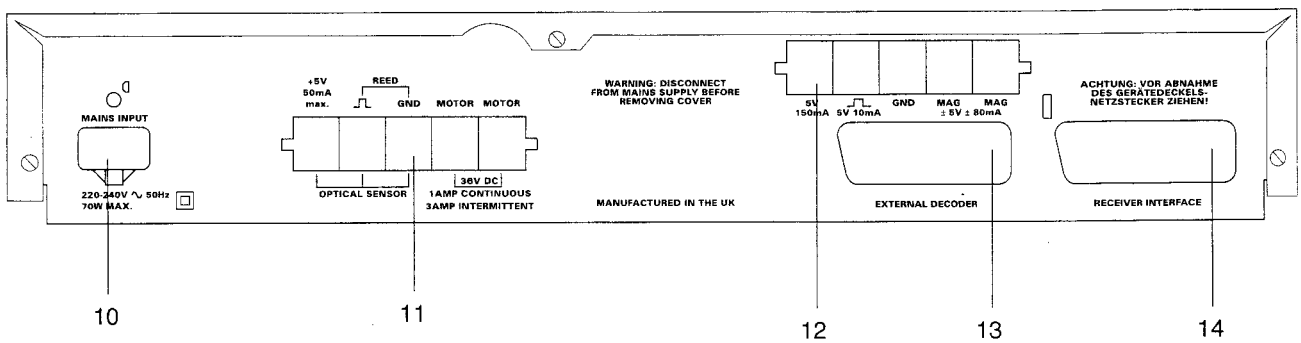
EAST or WEST key	**moves the dish** Eastwards or Westwards
STORE key	used to **store** East and West limits
MODE key	used when **resetting both limits**, to preserve any existing positions
NORM key	used to return to **normal mode** after altering just one limit



FRONT AND REAR PANEL DRAWINGS







▶ KEY

1. Standby ON/OFF button
2. MODE button
3. ∨ WEST button
4. ∧ EAST button
5. NORMAL MODE LED
6. PROGRAM MODE LED
7. SET LIMITS MODE LED
8. IR receive LED
9. 3-character display
10. Mains connector
11. Dish motor cable connectors (actuator socket)
12. Polariser connector
13. EXTERNAL DECODER SCART connector
14. RECEIVER INTERFACE SCART connector

NOTE: A label giving the model number and other product information is on the base of each unit.

▶ FRONT PANEL OVERVIEW

⏻ button	brings the Positioner out of **standby mode** into **normal mode** (and vice versa)
∧ EAST or ∨ WEST button	in **normal mode** — used to step through the **position numbers** one at a time; ∧ EAST increments the number, ∨ WEST decrements it; in **program mode** — used to physically move the dish
MODE button	whilst held down in **normal mode** it causes the **3-digit position** of the current position number to be displayed
MODE and ∧ EAST	puts the Positioner into **program mode**; then press MODE to enter **set limits mode**

OPERATION

This section includes information on how to set up and operate your Pace MSP995 Dish Positioner. You might like to use it as a guide to getting your unit "up and running". More detailed information on the MSP995's features can be found elsewhere in this manual.

Typically, you should follow these steps:-

1) Set Limits: Establish actual physical limits for the movement of your satellite dish.

2) Set Up Positions: Programme in the positions of any satellites you are interested in. This can be done at the Dish Positioner or in conjunction with a Pace 800/900 or MSS1000 series satellite TV receiver (or similar model).

3) Normal Mode Operation: Your MSP995 should then be ready for use and can be operated automatically using your satellite TV receiver handset.

SETTING THE LIMITS

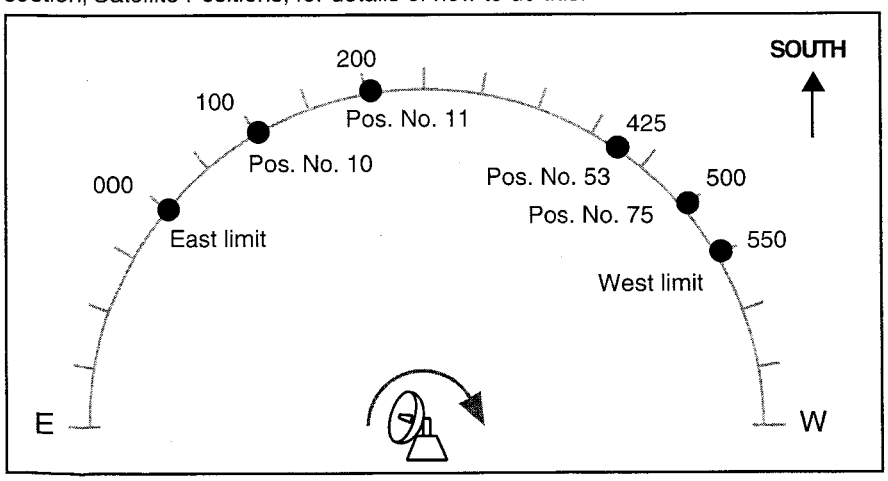
Introduction

Following installation of your MSP995 Dish Positioner, your first task should be to limit the panning movement of the satellite dish antenna. This is needed to prevent the dish from moving into physical obstructions or into areas where its reception is affected by objects such as overhanging tree branches or adjacent buildings.

You do this by setting up an **East limit** and a **West limit** for the Dish Positioner unit. Using your handset, follow the procedure outlined below:-

- Dish panning limits are established by using the **set limits mode** of your Dish Positioner. Press MODE then 2 on your handset. The LIMIT LED will illuminate and the Positioner front panel will show a 3-digit value (such as 024), indicating the current position of the dish.
- To set up an **East limit**, press and hold down the EAST key on your handset. The satellite dish should move as you do this and the front panel display will count down. Take your finger off the key to stop the dish from moving. *NOTE: If the dish moves in the opposite direction to that expected when you press the WEST or EAST key, then the actuator unit motor wires should be reversed.*
- Move the dish Eastwards until it has reached the position you want to set as the East limit. (You are advised to visually check the dish as you do this, to pinpoint any possible physical obstructions.)
- Press STORE. The display will read "L1 set", indicating that Limit 1 has been established. The 3-digit figure "000" will be shown. This corresponds to the Eastern limit of the dish panning range.
- You can now set up the **West limit**. Using the WEST handset key, move your satellite dish to the opposite extreme of the panning range you require. Press STORE. The display should indicate that Limit 2 has been set ("L2 set"), and will show a corresponding 3-digit position for this West limit.

Having established your East and West limits, you are now ready to store the positions of any satellites which fall within these dish panning limits. See the next section, Satellite Positions, for details of how to do this.



The diagram above shows a typical East limit (000) and West limit (550) configuration. Here, four satellite positions have been programmed in within this dish panning range. You should note, however, that your Pace MSP995 Dish Positioner allows a maximum of **128** satellite positions to be set up.

▶IMPORTANT

When you first connect up your MSP995 with a Pace 800/900 or MSS1000 Series Satellite TV Receiver via a full SCART lead, you should initialise the Dish Positioner. Bring the receiver into, and then out of, **standby mode**. The MSP995 will then be set up to work correctly with your receiver.

▶ADJUSTING THE LIMITS

The East and West limits you set up when first using your Dish Positioner are not fixed — you can alter them. New satellites are being launched all the time and you might wish to extend the panning range of your satellite dish to include their transmissions. The MSP995 allows you to quickly change the East and West limits. However, you should note the information below prior to doing this, particularly when you have **already set up satellite positions which you may wish to preserve**.

East Limit

Go into **set limits mode** (MODE, 2). Move the dish East and STORE the new limit. The display will read "L1 set 000". This will be the new starting point and all existing satellite positions you may have set up will be recalculated automatically by the MSP995. Press NORM to get back into **normal mode**.

West Limit

Enter **set limits mode** (MODE, 2), go to the new West limit and STORE. When "L1 set 000" is shown, press the NORM key. This will ensure that the position is taken as the new West (not East) limit.

Both Limits

Set the East limit (L1) as shown above. Then, move to the new West limit and STORE. **Whilst the display shows "L2 set"** press the MODE key. This will ensure that all existing satellite positions are preserved. The MSP995 will recalculate their 3-digit positions accordingly.

Out Positions

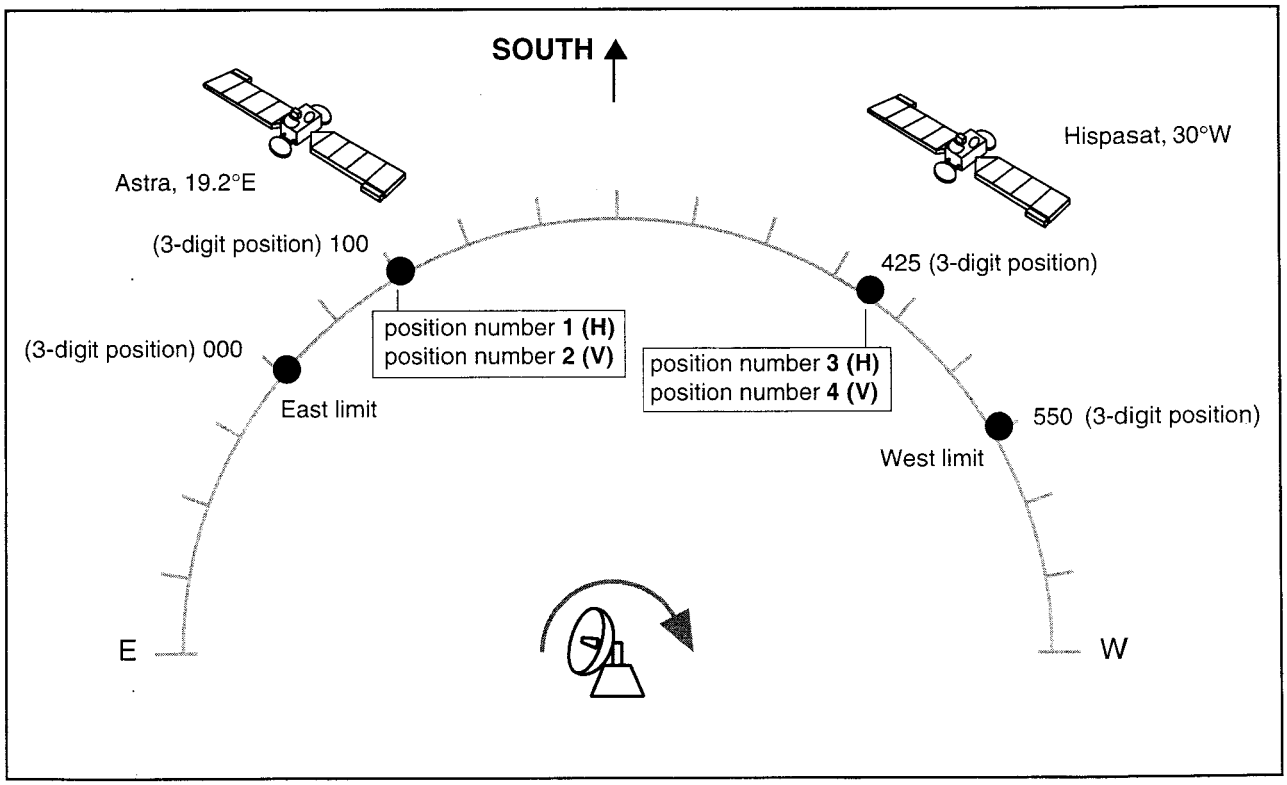
Rearranging the East/West limits for the MSP995 may "knock out" some existing satellite positions. They may be outside the new limits, for instance. When you try to move to these positions the display will read "out". To regain these positions, simply readjust the East or West limit as required.

SATELLITE POSITIONS

The MSP995 Dish Positioner allows you to assign a **satellite position number** for each satellite you want to pick up. Then, upon entering this position number, the dish will be moved to the preset position.

Using the MSP995 in conjunction with a Pace 800/900 or MSS1000 series Satellite Receiver provides you with extra functionality. You can then operate the system from your satellite receiver handset. The satellite dish will move into the correct position when you select a TV programme on your receiver.

The diagram below shows a simplified scenario, involving just two satellites for reasons of clarity. The two satellites have been allocated different position numbers as shown — one position per polarity type (H or V). Note the **3-digit position.** This is used by the Dish Positioner to indicate the distance moved from the East limit of the panning range. It does not show the actual geographical position of the satellite, but is an indication of how far from your East limit you are.



Setting up Position Numbers

The MSP995 Dish Positioner allows you to assign up to a maximum of 128 position numbers. You can set up satellite position numbers using just your MSP995 Dish Positioner but we advise that you use the Dish Positioner in conjunction with a Pace satellite TV receiver. This lets you operate the system directly from your satellite receiver handset.

With your receiver connected via a SCART lead to the Dish Positioner RECEIVER INTERFACE socket, follow these steps to set up satellite positions:-

- Firstly, ensure that your **Dish Positioner** is in **normal mode**. (Press NORM on your Positioner handset, if necessary.)
- At your **satellite TV receiver**, enter the Tuning Menu and type in the frequency of the programme you are interested in. (You may want to consult a satellite TV programme listing sheet.)
- Enter a number at the SATELLITE option. (You will need to use the ◄ and ► keys on your receiver handset.) Each satellite you want to receive from must be assigned a number. This will exactly correspond to the position number you set up at the Dish Positioner.
- Press STORE on your receiver handset. Then enter a programme number as prompted and press STORE once again.

- At your **Dish Positioner**, the display will show the number you entered at the receiver Tuning Menu, followed by the message "not set". The position number will then be redisplayed. Using the Dish Positioner handset, press the EAST or WEST keys as required, to move the satellite dish until you receive a good signal. Note that the 3-digit position will be shown on the front panel display.
- You may want to change the signal polarity, by means of the H/V key. This can improve the picture quality a great deal. (You can set up your position numbers to pull in H (Horizontal) or V (Vertical) programmes. See the adjacent box on Polarity Types.)
- Press STORE to store the dish position and polarity type (H or V).
- The position number will flash on the display. Use the ▲ or ▼ keys or the P-- key to change this number, if required. (It should correspond to the number you entered at the SATELLITE option in the receiver Tuning Menu.)
- Press STORE again. The 3-digit position will be shown on the display. You can then press NORM to return the Positioner to **normal mode**.

From now on, whenever you tune into this programme on your satellite TV receiver, the MSP995 will move the dish round to the position you have established.

Your position numbers can be set up so that they cover either all Horizontal (H) or all Vertical (V) transmissions from any one particular satellite. For example, position 1 could be assigned to cover all Horizontally-polarised programmes from Astra. Position 2 could be set up to cover all Vertically-polarised programmes from Astra. Then, at the receiver Tuning Menu, for each Astra programme you alter the SATELLITE option to 1 or 2, depending on whether the programme is H (Horizontal) or V (Vertical). Remember to press the STORE key to store any changes you make.

Using the Receiver Scanning Mode

As an alternative to entering the frequency of a desired programme straight into the receiver Tuning menu, you may want to use the Frequency scan mode provided on your Pace satellite receiver. This allows you to step through the frequency range and pick out the channels you are interested in.

Follow the instructions given in the receiver's user manual.

Changing Polarity Values

An important feature of the MSP995 is the capability to assign polarisation information to each satellite position you set up. You can apply a **polarity type** — Horizontal (H) or Vertical (V) — and a **polarity value** for each satellite you are receiving from. Once programmed in, the MSP995 will apply these values when you choose a programme at your satellite TV receiver.

You will have seen above how you can set up **two** position numbers for a single satellite. One for Vertically-polarised programmes and one for Horizontally-polarised programmes.

With the MSP995 you can also allocate a **polarity value** (or **skew value**) to satellite position numbers. Adjusting the polarity value allows you to precisely line up the polarisation of your dish aerial with the polarisation of the signals coming from the satellite. This is necessary because signals from different satellites arrive at the receiving site at different angles. Also, your polariser may not be aligned exactly — adjusting the polarity value can improve matters. So, you can fine tune your system for optimum reception on a satellite-to-satellite basis by changing the polarity values.

To adjust the polarity settings for a given satellite:-

- At your receiver, select a programme which comes from that particular satellite. The dish will track to the position you have set up previously and the front panel display will show the position number.
- Put the Positioner into **program mode** (MODE then 1) and press the POL key on the Positioner handset.
- The front panel display will show a **polarity type** (hor or ver) and then the **polarity value (skew)** for this position. (See box right).
- If necessary, flip the polarity using the H/V key. Use ▲ or ▼ to alter the number until you get the clearest picture (with the least sparklies) you can.
- You may want to slightly alter the dish position. Use the EAST or WEST key, as required. (You can still use the ▲ or ▼ keys to alter the skew value.).
- STORE this polarity setting against the flashing position number. Then press STORE again and the display will show the 3-digit position of the satellite.
- Pressing the NORM key will take you back into **normal mode**.

▶ POLARITY TYPES

We advise that you set up **two** position numbers for each single satellite. Your MSP995 allows you to configure positions specifically to receive either H (Horizontal) or V (Vertical) programmes.

Use the H/V key to assign a **polarity type** (H or V) when setting up your positions.

Your position numbers might look something like this:-

Pos. No.	Satellite
1	Astra (H)
2	Astra (V)
3	Eutelsat (H)
4	Eutelsat (V)
5	Intelsat (H)
6	Intelsat (V)

▶ POLARITY VALUES

The MSP995 comes supplied with factory-set skew values (**polarity values**) for reception of Horizontally- (H) and Vertically-polarised (V) transmissions. But you might want to change these values to "fine tune" your satellite positions for best reception.

The polarity type (h or v) is displayed, along with a 2-digit number (the polarity value) between 00 and 63. (For example, "h23" or "v14"). Change the number as required — the scale stops when you reach 00 or 63.

Note that this skew value now becomes the new default value for that particular polarity type — all new positions you set up will have this value assigned to them initially.

NORMAL MODE OPERATION

Once you have set the East and West limits for the MSP995 and programmed in position numbers for the satellites you are interested in, the Dish Positioner unit can be operated in a simple, uncomplicated manner.

The Dish Positioner must be in **normal mode.** If necessary, bring it out of standby mode. The NORM LED on the front panel will light up and the previous position number of the dish will be shown. The dish may move to this position if it is not there already.

Operating via a Satellite Receiver

If your Dish Positioner and a Pace Satellite Receiver are connected by a SCART lead and you have assigned satellite numbers at the receiver's Tuning Menu as outlined in the previous section, then the whole set-up can be operated via your receiver handset. **This is the preferred method of using the Dish Positioner.**

Simply select the required programme as you would normally. The MSP995 will automatically move your dish antenna to point in the correct direction. The front panel of the Dish Positioner will "count down" to zero. It will then show the corresponding satellite position number.

Operating via Dish Positioner Handset

If you are using the MSP995 in conjunction with a non-Pace satellite receiver, you must operate the Dish Positioner directly. Using the Dish Positioner handset, input the required position number (see box right). The dish will be moved to the appropriate position via the actuator unit. The 3-digit position on the front display will "count down" and then the selected position number will be redisplayed.

To move the dish temporarily from a stationary position, use the EAST and WEST keys on your handset as appropriate. The unit will go into **program mode**. Pressing NORM will move the dish back to the previously-selected position. Note that if you try to go past the East limit (000) or West limit the display will read "end".

Stopping the Dish

You may wish to stop the dish whilst it is moving between positions (the front panel display will be quickly counting down). Just press the EAST or WEST key on your Dish Positioner handset. The dish will immediately stop moving and you will be in **program mode.** Use the NORM key to get out of this mode — the dish will then resume its movement .

Changing 3-Digit Positions

The position numbers you have set up can be modified, if needed. Simply enter the position number at your Positioner handset. The dish will move to the predefined position. Move the dish East or West, as required, and then STORE this new 3-digit position using the same position number as before. The old position information will be overwritten. Press NORM to get back into **normal mode**.

Status Information

Whilst you are in **normal mode**, press the STATUS key. The 3-digit position of the current satellite position will be shown. This can be used as a quick way to find out where you are in the dish's panning range.

▶ SELECTING A POSITION

When you program positions in **program mode** or select them in **normal mode**, you need to key in a position number between 1 and 128. There are two ways to do this:-

- You can go through the positions one at a time by pressing the ▲ or ▼ key. The ▲ key increments the position number by one; the ▼ key decrements it by one.
- The other way to select position numbers is to use the **P-- key** and the numeric keys 0 to 9 as follows:

Pos. No.	Operation
1 to 9	Press the relevant numeric key.
10 to 99	Press the P-- key **once** then press the two relevant numeric keys.
100 to 128	Press the P-- key **twice** then press the two relevant numeric keys to complete the number.

▶ STANDBY MODE

When the Positioner is powered on it is initially in **standby mode** which is shown by a dash in the centre of the front panel 3-character display.

To bring it out of **standby mode**, press the ⏻ key. The Positioner will then be in **normal mode**. The dish may move to the position it was in prior to being put into standby mode. Alternatively, you can press the P-- and/or numeric keys. This selects a position number. Providing this position number has been programmed in, the Positioner will move the dish to this position.

The Positioner will also be brought out of **standby mode** when an attached Pace Satellite Receiver is brought out of **standby mode**, providing this receiver is connected to the Positioner by a full SCART lead.

To put the MSP995 back into **standby mode**, press the ⏻ key on the Positioner handset. Alternatively, if you are using a Pace Satellite Receiver connected by a full SCART lead, putting this receiver into standby will put the Dish Positioner back into **standby mode**.

RECOVERY

Power Failure

Every time the dish comes to rest, the Positioner stores information about the dish's position in its internal memory. Therefore if there is a power failure or the Positioner is switched off when the dish is **stationary**, all of the stored positions will still be programmed in when power is restored.

If, however, there is a power failure while the dish is actually **moving**, these stored positions will be lost unless you carry out the recovery procedure outlined below. For this procedure to work, position 1 must have been programmed and you must be able to remember which satellite was assigned to position 1.

When power is restored after the power failure, all three front panel LEDs will illuminate and the words "set" then "up" then "1" (set up position 1) will flash on the front panel display. The Positioner is now in a "recovery" mode.

Using your receiver handset, reselect a programme number which corresponds to position 1. Use the EAST or WEST handset key to move the dish until you see this programme on your TV screen. Press the STORE key on the Positioner handset or the ⏻ button on the front panel.

The Positioner will now function as it did before the power failure and all of the previously programmed positions will have been restored.

Clearing the Positioner's Memory

To reset your Positioner to the state that it was in when it left the factory (i.e. no East or West limit set and no position numbers programmed in and with preset skew values), press the Norm key to put the MSP995 into **normal mode**. Then press the P-- key , the STORE key and the STATUS key in quick succession. All the display LEDs will illuminate for several seconds and the Positioner will reset itself.

NOTE: ALL THE POSITIONS, LIMITS ETC. YOU HAVE SET WILL BE LOST.

ADVANCED FEATURES

Displaying Programme Numbers

If you are using your Dish Positioner in conjunction with a Pace 9000/9200 series or MRD920 receiver, you can set it up so that it displays satellite programme number rather than position number on it's front panel whilst in **normal mode**.

Press MODE then 9 to put your Positioner into this special mode of operation. The front panel display will show the currently selected programme number.

If you now select a different programme number using your receiver handset, the Dish Positioner display will change to this number. This is true even if the dish has moved to receive this programme.

To get back to displaying position numbers, press the MODE key then 9 again.

Out Positions

If you select a position number which falls outside the current East and West stop limits, the word "out" will be shown on the front panel display. These positions have not been deleted, however. They can be used again if you change the East and/or West limits so that they come within the new range. Their 3-digit positions will be recalculated and you will once again be able to select them.

Not Set Positions

If you select a position number which has not yet been assigned, the word "not" followed by the word "set" is shown on the front panel display. The dish will not move.

Deleting Positions

Any position numbers you have set up and stored can be deleted. Do the following:-

- In **normal mode**, select the position number you wish to delete.
- Put the positioner into **program mode** (MODE then 1) and then press MODE followed by 3 to access the MSP995's delete facility.
- The front panel display will alternate between showing the word "del" and the selected position number.
- Use the ▲ or ▼ key to change this position number, if required. Then press the STORE key to cause the deletion. The Positioner will then return to **normal mode** and will show the position number, followed by the message "not set".
- To leave the delete mode without deleting a position number, do not press STORE — instead use NORM to exit without storing any changes.

▶ ERROR MESSAGES

NOT SET: This position number has not been assigned.

OUT: Position falls outside the current East and West stop limits.

END: You have tried to go past the East limit or West limit.

DEL: This position has been selected for deletion.

ERR: Dish is stuck or it has reached its limit of travel.

The following error messages indicate problems with the MSP995's memory. Contact your dealer if these messages occur:-

000 (On powering up, prior to MSP995 going into standby mode.)

LE1 (At any time.)

ER1 (At any time.)

INSTALLATION

CAUTION: Incorrect installation could damage the actuator.

Connecting the Actuator

The 5-way rear panel socket is used to drive the actuator unit of the dish assembly.

For a **reed** type actuator, connect it up as shown in Figure 1.

For an **optical** (photo interrupter) type actuator, connect it up as shown in Figure 2.

Consult the instructions supplied with the actuator unit to determine where each of the coloured wires should be connected in the socket. The motor wires are generally thicker than the optical sensor wires. It is important that the optical sensor wires are screened and that the screen braid is connected to the ground terminal.

Connect the coaxial cable from the dish LNB to the LNB input connector on the satellite receiver.

Connecting an Electromagnetic or Mechanical Polariser

If your LNB has an electromagnetic or mechanical polariser, connect it to the appropriate points on the rear panel Polariser connector, as shown in Figure 3.

SCART Connection to a Pace Satellite Receiver

If you connect the Positioner to a Pace 800/900 or MSS1000 series satellite receiver via a full SCART lead, you can program satellite programme numbers against dish positions. The Positioner will then automatically move the dish to the correct position when you select a satellite programme using the receiver's handset.

Connect the receiver to the Positioner by means of a full, 21-way SCART lead. This should be used to connect up the receiver's DECODER SCART connector socket and the Positioner's RECEIVER INTERFACE SCART connector socket.

If an external decoder was connected to the receiver's DECODER SCART connector, you can now connect it to the Positioner's EXT. DECODER SCART connector.

Note that you can set up satellite positions at your receiver even if it is disconected from the Dish Positioner. As soon as you connect them together with a full SCART lead, the dish will move into position upon selecting a programme at the receiver. The receiver sends information about the position number down the SCART lead to the Positioner. Consult the appropriate receiver User Manual.

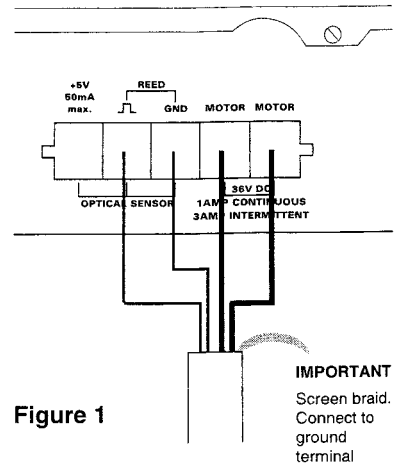


Figure 1

IMPORTANT
Screen braid. Connect to ground terminal

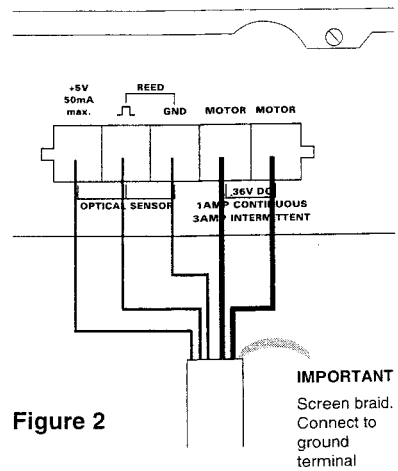


Figure 2

IMPORTANT
Screen braid. Connect to ground terminal

▶ USING OTHER MODELS

9000/9200 Series and MRD920

For these types of receivers, the process of storing TV programmes against satellite positions is slightly different. Here, the satellite TV programmes are stored against a satellite position **at the Dish Positioner** whilst it is in **program mode.** Information about the programme number is sent down the SCART lead to the Positioner.

First of all, connect the receiver and Positioner together using a full SCART lead.

Put the Dish Positioner into **program mode**.

Tune into the programme you need at the satellite receiver (via the Tuning Menu) and search for the satellite using the EAST and WEST keys of the Dish Positioner handset.

At your receiver Tuning Menu, press STORE and then STORE the information against a programme number.

At your Positioner, STORE the satellite position and allocate a position number to it. When you press STORE for the second time, this position number will be matched up with the number for the programme you have been watching.

For these models, use the MSP995 handset or front panel buttons to bring the Dish Positioner into and out of **standby mode** — your receiver handset will not be able to do this. Further, when using these types of receivers, the "not set" error message will not be displayed.

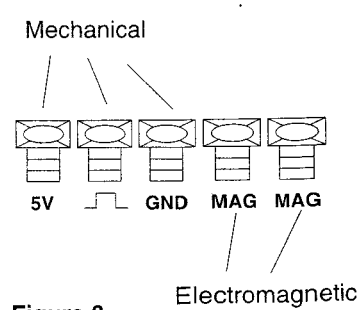


Figure 3

OUTLINE SPECIFICATION

Output to actuator motor:	36 V DC (nominal) floating isolated output (unfiltered, unregulated, rectified AC)
Maximum continuous load:	1 A RMS
Intermittent load:	3 A
Overload protection:	3.15 A delay fuse
Relay switching:	15 A heavy-duty relay
Position feedback type:	pulse counting
Pulse count range:	000 to 999
Pulse repetition rate:	1 pulse every 2 secs (minimum) 100 pulses per sec (maximum)
Compatible actuators:	magnetic reed pulse generator type photo interrupter pulse generator type
Reed switch operating current:	5 mA (max.) (5 V source)
Photo interrupter supply:	+5 V DC / 50 mA max. (nominal)
IR remote control system:	pulse type serial data
Receiver control interface:	serial data input via pin 12 of interface SCART socket (Pace receivers only)
External decoder adapter:	SCART socket to allow connection of an external decoder to the receiver (Pace receivers only)
Power transformer:	high-efficiency, low-profile toroidal type
Dimensions:	H = 66 mm, W = 360 mm, D = 210 mm
Power requirement:	220/240 V AC 50 Hz standby mode 6 W typical full load (moving antenna) 70 W max.
Operating temperature range:	5 - 40 °C
Operating relative humidity:	20 - 80% non-condensing at 25°C
Storage temperature range:	-20 - +50 °C
Storage relative humidity:	10 - 90% non-condensing at 25°C
Safety standards:	class II insulation complies with HD195.S6, BS 415, DEMKO, SEMKO, NEMKO, BZT

POLARISER

Mechanical:

Supply voltage:	+5 V max., 150 mA
Control output:	5 V p-p max., 10 mA
Resolution:	64 steps

Electromagnetic:

Control current:	0 - ±80 mA min., ±5 V max.
Resolution:	64 steps

Short circuit protected

PIN DESIGNATIONS FOR SCART CONNECTORS

PIN	RECEIVER INTERFACE	PIN	EXT. DECODER
1	R Audio Out	1	R Audio Out
2	R Audio In	2	R Audio In
3	L Audio Out	3	L Audio Out
4	Audio Ground	4	Audio Ground
5	Blue Ground	5	Blue Ground
6	L Audio In	6	L Audio In
7	Blue Out	7	Blue In
8	Ext. Decoder Status Out	8	Ext. Decoder Status In
9	Green Ground	9	Green Ground
10	N/C	10	N/C
11	Green Out	11	Green In
12	Serial Data I/O Port	12	N/C
13	Red Ground	13	Red Ground
14	N/C	14	N/C
15	Red Out	15	Red In
16	RGB Status Out	16	RGB Status In
17	Video Ground	17	Video Ground
18	N/C	18	Ground
19	Video (Ext. Dec.) Out	19	Baseband Video Out
20	Baseband Video (Ext. Dec.) In	20	Video In
21	Ground (Casing)	21	Ground (Casing)

▶SATELLITE GLOSSARY

LNB: Low Noise Block. Situated in the end of the dish feeder arm. Amplifies and changes the frequency of the incoming satellite signals so that your satellite receiver can handle them.

SCART CONNECTOR: 21 pin connector used for TV, Video and Satellite equipment. Also known as Peritel connector, Euroconnector.

DISH ANTENNA: Signals transmitted from a satellite are weak by the time they reach the Earth. Incoming signals are focussed to a point by the curve of the dish aerial and picked up by the feeder arm assembly. They then travel down a coaxial cable to your receiver unit.

SIGNAL POLARISATION: Satellite signals are usually polarised to enable more channels to be crammed into the available frequency bands. Types of polarisation used include Horizontal (H), Vertical (V), Left Handed Circular (L) or Right Handed Circular (R).

SKEW: Polarity adjustments done on a satellite-to-satellite basis. These are needed because signals coming from different satellites will arrive at the receiving site at differing angles.

ACTUATOR: Drive motor system used to move a satellite dish antenna between positions.